

## REMARKS

Claims 1-6 were pending in the application and were rejected.

### *Claim Objections*

Claims 1 and 6 were objected to because of typographical errors. The errors are corrected by this amendment.

### *Claim Rejections - 35 U.S.C. 112*

Claim 3 was rejected under 35 U.S.C. 112, second paragraph, for lack of antecedent basis. Claim 3 is amended to correct the problem.

### *Claim Rejections - 35 U.S.C. 103*

Claims 1-4 were rejected under 35 U.S.C. 103 over Blair (U.S. patent 6,136,705) in view of Cerio (U.S. patent 6,268,284). Claim 5 was rejected over Blair in view of Cerio and Venkatesan et al. (U.S. patent 5,863,598). Claim 6 was rejected over Blair in view of Cerio, Venkatesan et al. and Givens (U.S. patent application publication 2002/0019127).

Claim 1 is amended to incorporate the language of Claim 2 to recite:

forming a titanium layer over the cobalt layer by ionized  
physical vapor deposition while the body is attached to a support biased  
with an AC power of 0 W

Cerio teaches away from the 0 W bias by emphasizing the advantages of "superior directional deposition to fill higher aspect ratio features". Cerio, col. 4, lines 37-39. Cerio refers to U.S. patent no. 5,178,739 (Cerio, col. 3, line 4). The '739 patent is submitted herewith as part of an Information Disclosure Statement. The '739 patent states, in col. 5, lines 19-21:

Bias applied ... to chuck 18 will attract ionized atoms onto  
substrate 19 and facilitate directional deposition.

MPEP 2145.X.D.3 states:

Proceeding contrary to accepted wisdom is evidence of  
nonobviousness

Blair does not teach ionized PVD and thus does not overcome the deficiency of Cerio.

Venkatesan et al. are cited for teaching an opening of an aspect ratio at least 2.5. Givens is cited for teaching a dielectric layer sidewall. These teachings do not overcome the deficiency of Cerio.

New Claim 7 depends from Claim 1, and further recites that the titanium layer is deposited on the cobalt layer to be in contact with the cobalt layer. The 0 W bias recited in Claim 1 is advantageous for some embodiments of Claim 7 because the zero bias can "reduce cobalt resputtering". Applicant's specification, page 3, lines 2-3.

Cerio does not show any awareness of the cobalt resputtering problem related to the bias on his susceptor 30 in an ionized PVD of titanium as in Claim 7.

The undersigned can be contacted by telephone at the number below to discuss any questions regarding this case.

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**IN THE SPECIFICATION**

*Please amend the paragraph 0028 as follows:*

**[0028]** In one example, cobalt silicide is formed on the source lines of a flash memory array illustrated in Figs. 5-8. Some features of this memory are described in U.S. patent application no. 09/640,139 filed August 15, 2000 by Hsing Tuan et al., entitled "Nonvolatile Memory Structures and Fabrication Methods", incorporated herein by reference **(now U.S. patent no. 6,355,524 issued March 12, 2002)**. Fig. 5 is a circuit diagram showing two columns of the array. Fig. 6 is a top view. Fig. 7A illustrates a cross section of the array along the line A-A in Fig. 6. Fig. 7B illustrates a cross section along the line B-B.

*Please amend the paragraph 0040 as follows:*

**[0040]** Exemplary voltages for the programming, erase and reading operations of the memory are described in the aforementioned U.S. patent **no. 6,355,524** [application no. 09/640,139].

**IN THE CLAIMS**

1. (Amended) A method for forming cobalt silicide on a body which has a surface **[tha] that** comprises silicon, the method comprising:

forming a cobalt layer on said surface;

forming a titanium layer over the cobalt layer by ionized physical vapor deposition  
**while the body is attached to a support biased with an AC power of 0 W;**

reacting the cobalt with the silicon to form cobalt silicide; and

removing the titanium layer, and if any cobalt has not reacted with the silicon then removing the unreacted cobalt [;

wherein the titanium layer is formed by ionized physical vapor deposition].

*Please cancel Claim 2.*

3. (Amended) The method of Claim 1 wherein during the titanium layer deposition the distance between [the] a titanium target and the body is at least 140 mm.

4. (Unchanged) The method of Claim 1 wherein the titanium layer is at most 7.5 nm thick.

5. (Amended) The method of Claim 1 wherein said silicon surface is located at a bottom of an opening having an aspect ratio of at least 2.5.

6. (Amended) The method of Claim [7] 5 wherein at least part of a sidewall surface of the opening is made of a dielectric.

*Please add the following claim:*

7. (New) The method of Claim 1 wherein the titanium layer is deposited on the cobalt layer to be in contact with the cobalt layer.